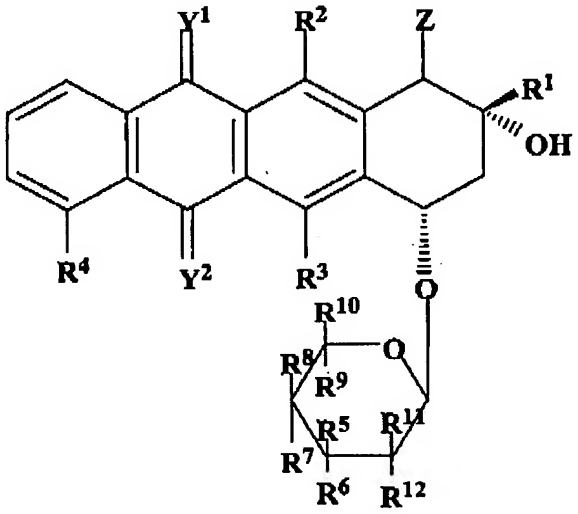
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A substituted anthracycline ~~comprising~~ of the formula:



wherein, R^1 is an alkyl chain, a ($-COCH_2R^{13}$) group, or a ($C(OH)-CH_2R^{13}$) group;

wherein, R^{13} is a hydrogen (-H) group, a hydroxyl group (-OH), a methoxy group ($-OCH_3$), an alkoxy group comprising 1-20 carbon atoms, an alkyl group comprising 1-20 carbon atoms, an aryl group comprising 1-20 carbon atoms, a fatty acyl group comprising the general structure ~~$-O-CO(CH2)_nCH_3$~~ $-O-CO(CH_2)_nCH_3$, wherein n = an integer from 1 to about 20, a fatty acyl group comprising the general structure $-O-CO(CH_2)_l(CH=CH)_m(CH_2)_nCH_3$, wherein l is an integer between 1 to 3, m is an integer between 1 and 6, and n is an integer between 1 and 9, a $-OCO-(CH_2)_n-CH_2NH_2$ group, or a ~~$OCO-(CH_2)_n-CO_2H$~~ $-OCO-(CH_2)_n-CO_2H$ group;

wherein R^2 and R^3 are, independently of the other, a hydrogen (-H), a hydroxyl group (-OH), or a methoxy group ($-OCH_3$);

R^4 is a hydrogen (-H) group, a methoxy group ($-OCH_3$), a hydroxyl group (-OH), or a halide;

wherein Y^1 and Y^2 are, independently of the other, a double bonded oxygen, sulphur, or nitrogen atom;

wherein Z is a –H, -OH, a $-CO_2H$, or a $-CO_2R$ group;

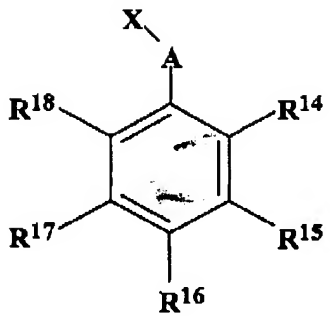
wherein R^7, R^8, are, independently, -H, -OH, a halide, $-OR^{19}$, -SH, $-SR^{19}$, $-NH_2$, $-NHR^{19}$, $-N(R^{19})_2$ or $-CH_3$, and R^7 can additionally be a saccharide, wherein R^{19} is an alkyl chain, an alkylating moiety, a cycloalkyl chain, a cyclic ring, or a hydrogen;

wherein R^9 is an –H, $-CH_3$, alkyl, aryl, CH_2OH, or a CH_2F group;

wherein R^{10}, R^{11}, and R^{12} are, independently, -H, -OH, a halide, -OR, -SH, -SR, $-NH_2$, -NHR, $-N(R)_2$, or a $-CH_3$;

wherein one of R^5 and R^6 is an -H;

wherein one of R^5 and R^6 is a X-alkyl-aromatic-ring (-XAAR) substituent, wherein, A is an alkyl group and wherein, AR is an substituted phenyl ring, a substituted five-member ring, a heteroatomic five-member ring, or a heteroatomic six-member ring, of the form:



;

wherein at least one of R^{14}-R^{18} is an (-H) group and wherein at least one of R^{14}-R^{18} is ~~a,~~ a hydroxyl group (-OH), a methoxy group (-OCH_3), a nitro group (-NO_2), an amine group (-NH_2), a halide, an alkoxy group comprising 1-20 carbon atoms, an alkyl group comprising 1-20 carbon atoms, an aryl group comprising 1-20 carbon atoms, an alkyl-amino group, an alkyl-thio group, a cyano group (CN, SCN), a -CO_2H group, or a -CO_2R group; and

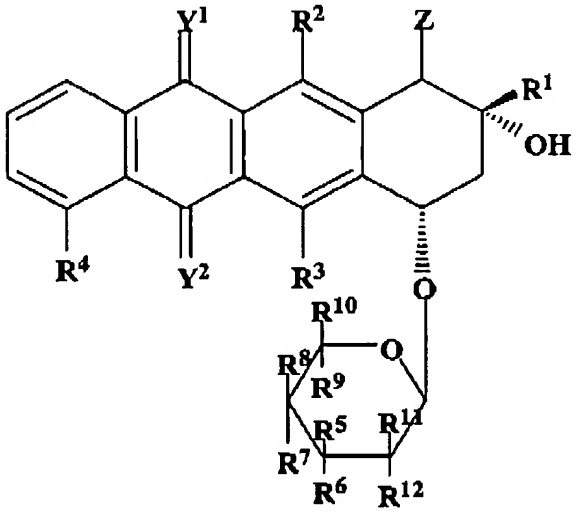
X is a -O, –N, -S, -SO, or a -SO_2 group; and

A is $(CH_2)_n$ where n = 0-10;

wherein, if R^5 is a XAAR substituent R^6 is not and if R^6 is a XAAR substituent R^5 is not.

2.-16. (canceled).

17. (currently amended) A substituted anthracycline ~~comprising~~ of the formula:



wherein, R^1 is an alkyl chain, a ($-COCH_2R^{13}$) group, or a ($C(OH)-CH_2R^{13}$) group;

wherein, R^{13} is a hydrogen (-H) group, a hydroxyl group (-OH), a methoxy group ($-OCH_3$), an alkoxy group comprising 1-20 carbon atoms, an alkyl group comprising 1-20 carbon atoms, an aryl group comprising 1-20 carbon atoms, a fatty acyl group comprising the general structure ~~$-O-CO(CH2)_nCH_3$~~ $-O-CO(CH_2)_nCH_3$, wherein n = an integer from 1 to about 20, a fatty acyl group comprising the general structure $-O-CO(CH_2)_l(CH=CH)_m(CH_2)_nCH_3$, wherein l is an integer between 1 to 3, m is an integer between 1 and 6, and n is an integer between 1 and 9, a $-OCO-(CH_2)_n-CH_2NH_2$ group, or a ~~$OCO-(CH_2)_n-CO_2H$~~ $-OCO-(CH_2)_n-CO_2H$ group;

wherein R^2 and R^3 are, independently of the other, a hydrogen (-H), a hydroxyl group (-OH), or a methoxy group ($-OCH_3$);

wherein R^4 is a hydrogen (-H) group, a methoxy group ($-OCH_3$), a hydroxyl group (-OH), or a halide;

wherein Y^1 and Y^2 are, independently of the other, a double bonded oxygen, sulphur, or nitrogen atom;

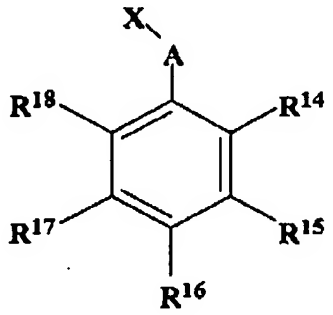
wherein Z is a –H, -OH, a $-CO_2H$, or a $-CO_2R$ group;

wherein R^5 and R^6, are, independently, -H, -OH, a halide, $-OR^{19}$, -SH, $-SR^{19}$, $-NH_2$, $-NHR^{19}$, $-N(R^{19})_2$ or $-CH_3$, and R^5 can additionally be an alkylating moiety, wherein R^{19} is an alkyl chain, an alkylating moiety, a cycloalkyl chain, a cyclic ring, or a hydrogen;

wherein R^9 is an –H, $-CH_3$, alkyl, aryl, CH_2OH, or CH_2F group;

wherein R^{10}, R^{11}, and R^{12} are, independently, -H, -OH, a halide, -OR, -SH, -SR, $-NH_2$, -NHR, $-N(R)_2$ or $-CH_3$;

wherein one of R^7 and R^8 is an –H and wherein one of R^7 and R^8 is a X-alkyl aromatic-ring (-XAAR) substituent, wherein, A is an alkyl group and wherein, AR is an unsubstituted phenyl ring, a substituted phenyl ring, a substituted five-member ring or a heteroatomic five-member ring, of the general form:



;

wherein, R^{14} -R^{18} are independently a (-H) group, a hydroxyl group (-OH), a methoxy group ($-OCH_3$), a nitro group ($-NO_2$), an amine group ($-NH_2$), a halide, an alkoxy group having 1-20 carbon atoms, an alkyl group having 1-20 carbon atoms, an aryl group having 1-20 carbon atoms, an alkyl-amino group, an alkyl-thio group, a cyano group (CN, SCN), an $-CO_2H$ group, or a $-CO_2R$ group; and

X is a -O, -N, -S, –SO, or a -SO_2 group; and

A is $(CH_2)_n$, where n = 0-10;

wherein if R^7 is a XAAR substituent R^8 is not and if R^8 is a XAAR substituent R^7 is not.

18.-47. (canceled).

48. (previously presented) The substituted anthracycline of claim 1, wherein the aromatic ring of the -XAAR substituent is disubstituted, trisubstituted, tetrasubstituted, or pentasubstituted.

49. (previously presented) The substituted anthracycline of claim 1, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

50. (previously presented) The substituted anthracycline of claim 17, wherein the aromatic ring of the -XAAR substituent is disubstituted, trisubstituted, tetrasubstituted, or pentasubstituted.

51. (previously presented) The substituted anthracycline of claim 17, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

52. (previously presented) A method of treating cancer comprising administering to a patient a substituted anthracycline of claim 1 or claim 17.

53. (previously presented) The method of claim 52, wherein the substituted anthracycline is formulated into a pharmaceutically acceptable carrier.

54. (previously presented) The method of claim 52, wherein the substituted anthracycline is the substituted anthracycline of claim 1.

55. (previously presented) The method of claim 52, wherein the substituted anthracycline is the substituted anthracycline of claim 17.

56. (previously presented) The method of claim 52, wherein the cancer is breast cancer, lung cancer, ovarian cancer, Hodgkin's disease, non-Hodgkin's lymphoma, acute leukemia, or carcinoma of the testes.

57. (previously presented) The method of claim 56, wherein the cancer is breast cancer.

58. (previously presented) The substituted anthracycline of claim 1 comprising the formula: